



# **DRAFT ASSESSMENT BENEFITS, COSTS, AND IMPACTS Universe of Projects**

Presented to the Policy Advisory Committee  
February 14, 2007



# Presentation Outline

- Context
- Assessment of Universe of Projects
- Conclusions



# Context

- Efforts to Date
  - ◆ Public Input
  - ◆ Existing Traffic Conditions
  - ◆ Future Traffic Forecasts and Conditions – Baseline
  - ◆ Projects – Universe and Selected
  - ◆ Traffic Forecasts for Alternatives
  - ◆ Costs
  - ◆ Environmental Overview





# Context

## ■ Remaining Efforts

- ◆ Operational Analysis
- ◆ Presentation to TAC and PAC (Get Feedback)
  - Universe – Qualitative
  - Selected Projects – Quantitative
- ◆ Categorize Projects (e.g. Study Further, Implement, Refer)
  - Projects Not Studied to Date
  - Projects Studied to Date
- ◆ Public Outreach
- ◆ Final Report



# Context

- Today
  - ◆ Present Universe of Projects
  - ◆ Get Feedback



# Assessment of Universe of Projects

- Intent
  - ◆ Compare and Contrast Projects





# Matrix

- Projects by Facility/Corridor
- Benefits, Costs, and Impacts
- Assessment Key

●	IMPROVEMENT	LESS-THAN-SIGNIFICANT
⊙	SMALL IMPROVEMENT	LESS-THAN-SIGNIFICANT (w/ MITIGATION)
○	DEGRADE	SIGNIFICANT
—	NO CHANGE	NONE

Location Key:	
EPA	East Palo Alto
MP	Menlo Park
MV	Mountain View
PA	Palo Alto
RC	Redwood City



# Highway 101

- Projects A and D1:
  - ◆ Both have 10-lane mainline cross-section
  - ◆ D1 requires reconstruction of interchanges
- Projects D2 and E require substantial right-of-way, disruption
- Project F may require right-of-way at conform locations



# HIGHWAY 101

ID Code	Alternative	Location	Traffic Benefits		Construction Cost (2006\$)	Potential Impacts			
						Visual/ Aesthetics	Noise	Environment	Right-of-Way
			Change in Roadway Congestion	Decrease commute traffic on residential streets?					
A	Route 101 Auxiliary Lanes and San Antonio I/C	MV, PA	●	—	<\$200M	⊙	⊙	⊙	⊙
D1	Widen freeway to 10 lanes (County Line to Shoreline)	MV, PA	●	—	> \$500M	⊙	⊙	⊙	⊙
D2	Widen freeway to 10 lanes + Aux Lanes (County Line to Shoreline)	MV, PA	●	—	> \$500M	○	⊙	○	○
E	Widen freeway to 10 lanes + Aux Lanes (Whipple to County Line)	RC, MP, EPA, PA	●	—	> \$500M	○	⊙	○	○
F	Route 101 Elevated Express Lanes	MV, PA, EPA, MP, RC	●	—	> \$500M	○	⊙	○	⊙
G	Improve local access across 101	MV, PA, EPA, MP, RC	—	—	<\$200M	—	—	⊙	⊙
ASSESSMENT KEY:									
		●	IMPROVEMENT			LESS-THAN-SIGNIFICANT			
		⊙	SMALL IMPROVEMENT			LESS-THAN-SIGNIFICANT (w/ MITIGATION)			
		○	DEGRADE			SIGNIFICANT			
		—	NO CHANGE			NONE			

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# Connecting Bridge to Highway 101

- Project H would have visual impact
- Projects I and J would have similar benefits
- Projects M and N would have significant impacts
- Project P1 is not a traffic project so no traffic benefits are shown

# CONNECTING BRIDGE AND HIGHWAY 101

ID Code	Alternative	Location	Traffic Benefits		Construction Cost (2006\$)	Potential Impacts			
						Visual/ Aesthetics	Noise	Environment	Right-of-Way
			Change in Roadway Congestion	Decrease commute traffic on residential streets?					
H	Grade Separations on Bayfront Expressway	EPA, MP	●	—	\$200M-\$500M	○	⊙	⊙	⊙
I	Extend Bayfront Expressway to Woodside Road	MP, RC	●	⊙	<\$200M	⊙	⊙	⊙	⊙
J	Construct direct flyover connection between Bayfront/ Marsh and 101 north of Marsh	MP, RC	⊙	⊙	<\$200M	○	⊙	⊙	⊙
L	Elevated roadway along Dumbarton RR corridor between University and 101	EPA, MP	●	⊙	\$200M-\$500M	○	⊙	○	⊙
M	New 101 South connection through East Palo Alto (Expressway south of University)	EPA, MP	●	●	>\$500M	○	○	○	○
N	New 101 South connection skirting East Palo Alto (Expressway/viaduct along edge of bay)	EPA, PA	●	●	>\$500M	○	⊙	○	○
O	Tunnel beneath East Palo Alto	EPA	●	●	>\$500M	●	●	●	⊙
P	San Francisquito Creek Diversion Structure and Roadway (dual use tunnel facility)	EPA, PA	⊙	⊙	\$200M-\$500M	⊙	⊙	○	⊙
P1	Route 101 flood control project potentially down Willow Road.	EPA, MP	—	—	\$200M-\$500M	⊙	⊙	○	⊙
ASSESSMENT KEY:									
		●	IMPROVEMENT			LESS-THAN-SIGNIFICANT			
		⊙	SMALL IMPROVEMENT			LESS-THAN-SIGNIFICANT (w/ MITIGATION)			
		○	DEGRADE			SIGNIFICANT			
		—	NO CHANGE			NONE			

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# Willow Road

- Several projects have small benefits and significant *Environment* impact
- Widening and grade-separations, while beneficial, have significant impacts
- Difference between CC and GG (express lanes) is primarily visual

# WILLOW ROAD

ID Code	Alternative	Location	Traffic Benefits		Construction Cost (2006\$)	Potential Impacts			
						Visual/ Aesthetics	Noise	Environment	Right-of-Way
			Change in Roadway Congestion	Decrease commute traffic on residential streets?					
Q	Short-term operational improvements on Willow Road	EPA, MP	⊙	⊙	<\$200M	-	-	-	-
V	Eliminate driveway access on Willow	EPA, MP	⊙	⊙	<\$200M	-	-	○	-
W	Eliminate selected signalized intersections: · Newbridge St · Ivy Dr · Hamilton Ave	EPA, MP	⊙	⊙	<\$200M	-	-	○	-
X	Eliminate signalized intersections and allow right turns only on/off Willow	EPA, MP	⊙	⊙	<\$200M	-	-	○	-
Y	Eliminate signalized intersections and prohibit any access from local streets	EPA, MP	⊙	⊙	<\$200M	-	-	○	-
Z	Widen Willow one lane each direction	EPA, MP	●	●	<\$200M	○	⊙	○	○
AA	Grade separations at selected intersections: · Newbridge St · Ivy Dr · Hamilton Ave	EPA, MP	●	●	\$200M-\$500M	○	⊙	○	○
CC	Willow Road Elevated Express Lanes	EPA, MP	●	⊙	<\$200M	○	⊙	⊙	⊙
EE	Grade separations at all intersections (over crossings or under crossings)	EPA, MP	●	●	>\$500M	○	⊙	○	○
GG	Willow Road Depressed/Cantilevered Express Lanes	EPA, MP	●	⊙	\$200m to \$500M	⊙	⊙	⊙	⊙
	ASSESSMENT KEY:								
		●	IMPROVEMENT			LESS-THAN-SIGNIFICANT			
		⊙	SMALL IMPROVEMENT			LESS-THAN-SIGNIFICANT (w/ MITIGATION)			
		○	DEGRADE			SIGNIFICANT			
		-	NO CHANGE			NONE			

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# University Avenue

- Several projects have small benefits and significant *Environment* impact
- Widening and grade-separations, while beneficial, have significant impacts
- Difference between SS and WW (express lanes) is primarily visual



# UNIVERSITY AVENUE

ID Code	Alternative	Location	Traffic Benefits		Construction Cost (2006\$)	Potential Impacts			
						Visual/Aesthetics	Noise	Environment	Right-of-Way
			Change in Roadway Congestion	Decrease commute traffic on residential streets?					
HH	Short-term operational improvements on University Avenue	EPA	⊙	⊙	<\$200M	-	-	-	-
II	Prohibit left turns during peak travel periods	EPA	⊙	⊙	<\$200M	-	-	⊙	-
JJ	Prohibit local cross traffic during peak travel periods	EPA	⊙	⊙	<\$200M	-	-	○	-
KK	Entrance/Exit Right Turn pockets on University	EPA	⊙	⊙	<\$200M	-	-	-	⊙
LL	Set back curb line one lane width from traveled way at driveways	EPA	⊙	⊙	<\$200M	-	-	-	○
MM	Eliminate driveway access on University	EPA	⊙	⊙	<\$200M	-	-	○	-
NN	Eliminate selected signalized intersections: • Bell • Runnymede • Kavanaugh	EPA	⊙	⊙	<\$200M	-	-	○	-
OO	Eliminate signalized intersections and allow right turns only on/off University	EPA	⊙	⊙	<\$200M	-	-	○	-
PP	Eliminate signalized intersections and prohibit any access from local streets	EPA	⊙	⊙	<\$200M	-	-	○	-
	ASSESSMENT KEY:								
		●	IMPROVEMENT			LESS-THAN-SIGNIFICANT			
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		○	DEGRADE			SIGNIFICANT			
		-	NO CHANGE			NONE			

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# UNIVERSITY AVENUE (CONT'D)

ID Code	Alternative	Location	Traffic Benefits		Construction Cost (2006\$)	Potential Impacts			
						Visual/ Aesthetics	Noise	Environment	Right-of-Way
			Change in Roadway Congestion	Decrease commute traffic on residential streets?					
QQ	Widen University one lane each direction	EPA	●	●	<\$200M	○	⊙	○	○
RR	Grade separations at selected intersections: · Donohoe · Bay	EPA	●	●	<\$200M	○	⊙	○	○
SS1	Elevated expressway/viaduct along University corridor · 2 lanes each direction	EPA	●	●	\$200M-\$500M	○	⊙	⊙	⊙
SS2	Elevated viaduct expressway structure · 1 lane in each direction	EPA	●	●	\$200M-\$500M	○	⊙	⊙	⊙
SS3	Elevated viaduct expressway structure · Reversible 2 lanes	EPA	●	●	\$200M-\$500M	○	⊙	⊙	⊙
SS4	Elevated viaduct expressway structure · 3 lanes with reversible middle lane	EPA	●	●	\$200M-\$500M	○	⊙	⊙	⊙
UU	Grade separations at all intersections (over crossings or under crossings)	EPA	●	●	>\$500M	○	⊙	○	○
VV	Tunnel Expressway, (maintain existing facility at grade)	EPA	●	●	>\$500M	●	●	●	⊙
WW	University Avenue Depressed/Cantilevered Express Lanes	EPA	●	●	> \$500M	⊙	⊙	⊙	⊙
	ASSESSMENT KEY:								
		●	IMPROVEMENT			LESS-THAN-SIGNIFICANT			
		⊙	SMALL IMPROVEMENT			LESS-THAN-SIGNIFICANT (w/ MITIGATION)			
		○	DEGRADE			SIGNIFICANT			
		—	NO CHANGE			NONE			

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# Intelligent Transportation Systems (ITS)

- Complementary to physical expansion projects
- Incident Management study will begin soon



# INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

ID Code	Alternative	Location	Traffic Benefits		Construction Cost (2006\$)	Potential Impacts			
						Visual/ Aesthetics	Noise	Environment	Right-of-Way
			Change in Roadway Congestion	Decrease commute traffic on residential streets?					
XX	Install traffic signal interconnect/communications infrastructure between Middlefield Road and 101	ALL	⊙	⊙	<\$200M	-	-	-	-
YY	Install transit signal priority to support high-patronage bus routes.	ALL	⊙	⊙	<\$200M	-	-	-	-
ZZ	Install trailblazers and/or arterial CMS to provide route guidance information	ALL	⊙	⊙	<\$200M	-	-	-	-
AAA	Prepare Incident Management and Traveler Information Plan for Corridor	ALL	⊙	⊙	<\$200M	-	-	-	-
	ASSESSMENT KEY:								
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# Other

- Two projects are studies
- Central Expressway extension, while beneficial, would have significant impacts

# OTHER

ID Code	Alternative	Location	Traffic Benefits		Construction Cost (2006\$)	Potential Impacts			
						Visual/ Aesthetics	Noise	Environment	Right-of-Way
			Change in Roadway Congestion	Decrease commute traffic on residential streets?					
BBB	Study the possible designation of East Bayshore (San Antonio to University) as a reliever route to provide congestion relief and for incident management on Route 101 <ul style="list-style-type: none"> <li>Improve operations at intersections</li> <li>Install directional signage to help keep commuters off residential streets</li> </ul>	MV, EPA	—	—	<\$200M	—	—	—	—
DDD	Define residential traffic management elements that complement high priority capital improvements	ALL	—	●	<\$200M	—	—	●	—
EEE	Extend Central Expressway to Sand Hill Road	PA	●	●	>\$500M	○	○	○	○
	ASSESSMENT KEY:								
		●	IMPROVEMENT			LESS-THAN-SIGNIFICANT			
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# Conclusions

- Tradeoffs Identified
- Results Will Inform Project Categorization